

What is claimed is:

1. An apparatus for freshening air, the apparatus comprising:

a base unit;  
a power supply operably connected to the base unit;  
a driving and switching circuit connected to be powered by the power supply;  
a first plug portion connected to the driving and switching circuit;  
a detachable autonomous liquid droplet dispensing cartridge detachably engagable with the first plug portion, having

- (a) a second plug portion matingly engagable with the first plug portion,
- (b) a first airless bag for storing a first nebulizable liquid
- (c) a second airless bag for storing a second nebulizable liquid, and
- (d) a casing enclosing the first bag and the second bag; and

a nebulizer connected to each bag by a respective inlet of an interface, so that, when the nebulizer operates, and first and second nebulizable liquids are contained in the first and second bags, respectively, the first nebulizable liquid flows from the first bag and the second nebulizable liquid flows from the second bag so that the first nebulizable liquid and the second nebulizable liquid are mixed in a space before being nebulized into a combined mist by the nebulizer;  
wherein the nebulizer is electrically connected to the power supply and controlled by the driving and switching circuit when the second plug portion is matingly engaged to the first plug portion.

2. An apparatus for refreshing air as recited in claim 1, wherein the interface includes a first inlet that provides a path of egress for the first liquid and a second inlet that provides a path of egress for the second liquid, so that, when the nebulizer operates, and first and second nebulizable liquids are contained in the first and second bags, respectively, the first nebulizable liquid and the

second nebulizable liquid flow from the first bag and the second bag, respectively, through the interface and into the nebulizer.

3. An apparatus for refreshing air as recited in claim 1, wherein the nebulizer includes a nozzle membrane that has at least one nozzle sized to disperse droplets that are about 1-7 microns in diameter.

4. An apparatus for refreshing air as recited in claim 1, wherein the nebulizer includes a nozzle membrane that has at least one nozzle sized to disperse droplets that are about 5-30 microns in diameter.

5. An apparatus for refreshing air as recited in claim 2, further comprising a switch disposed in the driving and switching circuit and electrically connected to the power supply,

wherein the switch activates the nebulizer and the flow of the first nebulizable liquid and the second nebulizable liquid from the first airless bag and the second airless bag, respectively, through the interface and into the nebulizer.

6. An apparatus for refreshing air as recited in claim 5, wherein the switch is operable by a remote unit.

7. An apparatus for refreshing air as recited in claim 6, wherein the remote unit is a wireless control unit, a personal digital assistant, a cell phone, or a web-appliance.

8. An apparatus for refreshing air as recited in claim 6, wherein the remote unit includes a turbulence sensor for sensing the flow of ambient air and a logarithmic gas sensor for detecting the combined concentration of the first nebulizable liquid and the second nebulizable liquid in the ambient air.

9. An apparatus for refreshing air as recited in claim 1, wherein the first bag contains a first nebulizable liquid that is different from a second nebulizable liquid contained in the second bag.

10. An apparatus for refreshing air as recited in claim 9, wherein the first nebulizable liquid is a primary fragrance and the second nebulizable liquid is a disinfectant.

11. An apparatus for refreshing air as recited in claim 9, wherein the first nebulizable liquid is a primary fragrance and the second nebulizable liquid is an accord fragrance for aesthetically enhancing the primary fragrance.

12. An apparatus for refreshing air as recited in claim 2, wherein the cartridge further comprises a third airless bag for storing a third nebulizable liquid and the interface further includes a third inlet corresponding to the third airless bag, wherein the third inlet provides a path of egress for the third liquid in the third bag so that when the nebulizer operates, and first, second and third nebulizable liquids are contained in the first, second and third bags, respectively, the first, second and third nebulizable liquids flow through the interface and are mixed in the space before being nebulized into a combined mist by the nebulizer.

13. An apparatus for refreshing air as recited in claim 12, wherein the cartridge further comprises a fourth airless bag for storing a fourth nebulizable liquid and the interface further includes a fourth inlet, wherein the fourth inlet provides a path of egress for the fourth liquid in the fourth bag so that when the nebulizer operates, and first, second, third and fourth nebulizable liquids are contained in the first, second, third and fourth bags, respectively, the first, second, third and fourth nebulizable liquids flow through the interface and are mixed in the space before being nebulized into a combined mist by the nebulizer.

14. A system for refreshing air comprising at least two air refreshing apparatuses and a power supply, wherein each apparatus comprises:

a base unit, wherein the power supply is operably connected to the base unit;

a driving and switching circuit connected to be powered by the power supply;

a first plug portion connected to the driving and switching circuit;

a detachable autonomous liquid droplet dispensing cartridge detachably engagable with the first plug portion, having

(a) a second plug portion matingly engagable with the first plug portion,

(b) a first airless bag for storing a first nebulizable liquid

(c) a second airless bag for storing a second nebulizable liquid, and

(d) a casing enclosing the first bag and the second bag; and

a nebulizer connected to each bag by a respective inlet of an interface, so that, when the nebulizer operates, and first and second liquids are contained in the first and second bags, respectively, the first nebulizable liquid flows from the first bag and the second nebulizable liquid flows from the second bag so that the first nebulizable liquid and the second nebulizable liquid are mixed in a space before being nebulized into a combined mist by the nebulizer,

wherein the nebulizer is electrically connected to the power supply and controlled by the driving and switching circuit when the electronic connector engages the cartridge.

15. A system for refreshing air as recited in claim 14, wherein the system is integrated into an HVAC duct.

16. A method for refreshing air comprising the steps of:

providing at least one autonomous liquid droplet dispensing cartridge having multiple airless bags, wherein each bag contains a nebulizable fluid and each bag is connected to an interface, and the interface is connected to a

nebulizer, so that there is a path of egress from each bag to the nebulizer through which nebulizable fluid flows to the nebulizer;  
flowing the nebulizable fluid from each bag to the nebulizer;  
mixing the nebulizable fluid from each bag in a space to provide a mixed fluid; and  
nebulizing the mixed fluid to provide a combined mist.

17. A method for refreshing air as recited in claim 16, wherein the flow of nebulizable fluid is activated by a signal from a wireless control unit.

18. A method for refreshing air as recited in claim 16, wherein nebulizing of the mixed fluid is controlled to maintain a perceived air quality of the ambient air.

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